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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/045,412	01/12/2002	Clark Hu	67,200-655	6396

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EXAMINER

STAFIRA, MICHAEL PATRICK

ART UNIT PAPER NUMBER

2877

DATE MAILED: 04/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/045,412

Applicant(s)

HU ET AL.

Examiner

Michael P. Stafira

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Feldman et al. ('824).

Claim 1

Feldman et al. ('824) discloses one light source (Fig. 2, Ref. 301) that generates light reflected by the wafer (Fig. 2, Ref. 32) and one light detector (Fig. 2, Ref. 310) sensing a detected light value of the light reflected by the semiconductor wafer, where the detected light value deviating from the normal value corresponding to no wafer tilt indicates that the wafer has tilted (Col. 5, lines 2-25).

Claim 2

The reference of Feldman et al. ('824) further discloses a single light source (Fig. 2, Ref. 301).

Claim 3

Feldman et al. ('824) further discloses the light detector is a pair of light detectors (Col. 5, lines 31-41).

Claim 4

The reference of Feldman et al. ('824) further discloses a beam splitter (Fig. 2, Ref. 400) to split the light generated by the single light source into a first light beam and a second light beam (Col. 6, lines 8-26).

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Claim 5

Feldman et al. ('824) further discloses a beam bender (Fig. 2, Ref. 470) to reflect the second light beam towards the semiconductor wafer (Fig. 2, Ref. 32).

Claim 6

The reference of Feldman et al. ('824) further discloses a first light detector of the pair of the light detectors senses a first detected light value for the first light beam reflected by the semiconductor wafer, and a second light detector of the pair of light detectors senses a second detected light value for the second light beam reflected by the semiconductor wafer (Col. 5, lines 31-41). It is the position of the examiner that when the wafer has a tilt angle the Gaussian spots R' and V' are going to be positioned separately on one of the four photodetectors and therefore reads on the claimed limitation.

Claim 7

Feldman et al. ('824) further discloses a comparator (Fig. 2, Ref. 510) comparing the first detected light value and the second detected value as an absolute difference, where the absolute difference deviating from a normal absolute difference corresponding to no wafer tilt indicates that the wafer has tilted (Col. 5, lines 2-25).

Claim 8

The reference of Feldman et al. ('824) further discloses the light detector is a single light detector (Col. 5, lines 31-41).

Claim 9

Feldman et al. ('824) further discloses the one light source is a single light source (Col. 6, lines 5-6).

Claim 10

The reference of Feldman et al. ('824) further discloses the detected light value deviating from the normal value corresponding to no wafer tilt by more than a tolerance value indicates that the wafer has tilted (Col. 6-7, lines 52-25).

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Claim 11

Feldman et al. ('824) discloses a light source (Fig. 1, Ref. 20) generating light reflected by the semiconductor wafer (Fig. 1, Ref. 14) and a pair of light detectors each sensing a detected light value of the light reflected by the semiconductor wafer (Col. 5, lines 31-41). The reference of Feldman et al. ('824) further discloses a comparator (Fig. 1, Ref. 28) to compare the detected light value sensed by each of the pair of light detectors as a wafer tilt value, where the wafer tilt value deviating from a normal value corresponding to no wafer tilt indicates that the wafer has tilted (Col. 5, lines 3-25).

Claim 12

The reference of Feldman et al. ('824) further discloses a beam splitter (Fig. 2, Ref. 400) to split the light generated by the single light source into a first light beam and a second light beam (Col. 6, lines 8-26).

The reference of Feldman et al. ('824) further discloses a first light detector of the pair of the light detectors senses a first detected light value for the first light beam reflected by the semiconductor wafer, and a second light detector of the pair of light detectors senses a second detected light value for the second light beam reflected by the semiconductor wafer (Col. 5, lines 31-41). It is the position of the examiner that when the wafer has a tilt angle the Gaussian spots R' and V' are going to be positioned separately on one of the four photodetectors and therefore reads on the claimed limitation.

Claim 13

Feldman et al. ('824) further discloses a beam bender (Fig. 2, Ref. 470) to reflect the second light beam towards the semiconductor wafer (Fig. 2, Ref. 32).

Claim 14

The reference of Feldman et al. ('824) further discloses the detected light value deviating from the normal value corresponding to no wafer tilt by more than a tolerance value indicates that the wafer has tilted (Col. 6-7, lines 52-25).

Claim 15

Feldman et al. ('824) discloses the step of aiming one light beam (Fig. 1, Ref. 20) against a semiconductor wafer (Fig. 1, Ref. 14) for reflection by the semiconductor wafer and sensing the one light beam after reflection by the semiconductor wafer as corresponding one light values and determining that the wafer tilt of the semiconductor wafer has occurred where the one light values deviate from a normal value corresponding to no wafer tilt (Col. 5, lines 3-30).

Claim 16

The reference of Feldman et al. ('824) further discloses the step of ensuring that the semiconductor wafer has not tilted and aiming the one light beam against the semiconductor wafer for reflection by the semiconductor wafer. Feldman et al. ('824) further discloses the step of sensing the one light beam after reflection by the semiconductor wafer as the normal value (Col. 5, lines 3-30; Col. 6-7, lines 53-25).

Claim 17

Feldman et al. ('824) discloses the step of determining that the wafer tilt of the semiconductor wafer has occurred where the one light values deviate from the normal value corresponding to no wafer tilt while determining that wafer tilt of the semiconductor wafer has occurred where each of at least one of the light values deviate from the corresponding normal value for the light value (Col. 5, lines 3-31).

Claim 18

The reference of Feldman et al. ('824) further discloses the step of comparing the one light value as an absolute difference and determining that wafer tilt of the semiconductor wafer has occurred where the absolute difference deviates from a normal absolute difference (Col. 5, lines 3-31).

Claim 19

Feldman et al. ('824) discloses the step of determining that wafer tilt of the semiconductor wafer has occurred where the absolute difference deviates from the normal absolute difference by determining that wafer tilt of the semiconductor wafer has occurred where

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the absolute difference deviates from the normal absolute by more than a tolerance value (Col. 5, lines 3-31).

Claim 20

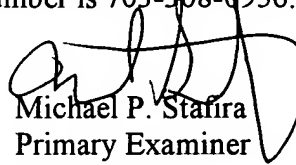
The reference of Feldman et al. ('824) further discloses the step of determining that wafer tilt of the semiconductor wafer has occurred where the one light values deviate from the normal value corresponding to no wafer tilt comprises determining that the wafer tilt of the semiconductor wafer has occurred where the one light values deviate from the normal value by more than a tolerance value (Col. 5, lines 3-31).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael P. Stafira whose telephone number is 703-308-4837.

The examiner can normally be reached on 4/10.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on 703-308-4881. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7721 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.


Michael P. Stafira
Primary Examiner
Art Unit 2877

April 14, 2003